



DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
WASHINGTON, D.C. 20590

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Title 49—Transportation

CHAPTER I—RESEARCH AND SPECIAL
PROGRAMS ADMINISTRATION,
MATERIALS TRANSPORTATION
BUREAU, DEPARTMENT OF TRANS-
PORTATION

[Docket No. HM-162; Amdt. No. 173-122]

PART 173—SHIPPERS—GENERAL RE-
QUIREMENTS FOR SHIPMENTS AND
PACKAGINGS

Metric Equivalence for Quantity
Limitations

AGENCY: Materials Transportation Bureau, Research and Special Programs Administration, Department of Transportation.

ACTION: Final rule.

SUMMARY: This amendment authorizes, for quantity limitations that are now specified by U.S. liquid measure or avoirdupois weight in 49 CFR, Parts 171-178, the use of metric measures on an equivalent basis and up to and including one liter per quart and 500 grams per pound. The amendment permissively extends to quantities of 10 gallons or less and 1000 pounds or less. This amendment is issued to facilitate conversion to metric measurements utilized domestically and internationally in the packaging and transportation of various commodities, including materials classed by the Department as hazardous materials.

EFFECTIVE DATE: January 15, 1979.

FOR FURTHER INFORMATION
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ton, D.C. 20590, 202-426-0656.

SUPPLEMENTARY INFORMATION: A Notice of Proposed Rulemaking on this subject was published in the FEDERAL REGISTER on June 29, 1978 (43 FR 28216). The Notice was based on a petition received from the Manufacturing Chemists Association requesting revision to section 173.26(a) of the Department's Hazardous Materials Regulations to facilitate conversion to metric measurements in the transportation of hazardous materials. In setting forth the proposal, the Materials Transportation Bureau (the Bureau) expressed the view that the changes proposed would have no adverse effect on the safe transportation of hazardous materials and would be of consid-

erable assistance to shippers converting to systems of metric measurement for both domestic and international purposes, and that the proposed change to the regulations, if adopted, would not impose any additional costs on packaging manufacturers or shippers since use of the provisions of section 173.26 is optional.

The comments received ranged from full support of the proposed amendment, to total objection. Many commenters pointed out that the symbol (rather than abbreviation) for a milliliter is mL rather than ml, and a change has been made accordingly. Several commenters failed to note that application of section 173.26(a) is permissive rather than mandatory. One commenter stated: "Although 1 quart may be rounded to 1 litre, in fact, 1 quart equates to .946 352 9 litre (Standard for Metric Practice ASTM E 380-76E). Therefore, all present U.S. liquid volume measures will be increased by 5.7 percent. This percent increase is unacceptable for packages exceeding 1 gallon." The commenter did not indicate why the increase is unacceptable and apparently missed the point that the application of the regulation is optional. If his particular industry group finds its use unacceptable, they should not use it. The same commenter said:

This stated "increase" in measure will put the petroleum industry in conflict with, among others, CFR-49 178.116-2 which states: "Minimum actual capacity of containers shall be not less than rated (marked) capacity plus 4 percent." I select this "rated capacity" since the DOT-17E specification was the illustration used in Notice No. 78-9. But this will hold for nearly all rated capacities over the current regulation which reads: "1 gallon for liquids and 10 pounds for solids." As the size of the container increases, the absolute percent will remain constant but the actual discrepancy in gallons will increase. Under accepted conversion standards, there would be 5.9 gallons less in a container at 110 U.S. gallons than the stated metric equivalent under the proposed rule making.

It is not clear what the accepted conversion standards are that are alluded to by the commenter. However, if his concern is in regard to a reduction in safety because of a change in outage, it should be noted that four percent of 220 L is 8.8 L while four percent of 208 L (approximately 55 gallons) is 8.32 L. Therefore, a 220 L drum will require greater minimum outage than a 208 L drum.

The commenter did not illustrate an unsafe condition that would be created by the proposal. However, we accept his comment for further study concerning the validity of all the

outage requirements considering recently adopted filling restrictions set forth in various shipping sections of the regulations, such as section 173.116(b) for flammable liquids.

Two commenters, associated with aviation, expressed opposition to the proposal based on the confusion that would be created by the use of metric measurements and the possibility that it would contribute to possible overloading of aircraft. In responding to the comments, we assure the commenters are referring primarily to the information contained in the shipping documents. For many years, the regulations have authorized the display of metric quantity measurements on shipping documents. At the present time, section 172.202(a)(4) does not preclude weight being entered in kilograms and volume and liters, and many shipments, particularly those in international commerce, are presently shipped and documented using metric measurement. The Bureau believes that it has become necessary for all persons involved in commerce to become acquainted with metric measurements whether hazardous materials are involved or not. Consistent with this view, the Department of Transportation is entering into an effort to familiarize its enforcement personnel with the metric equivalents that are authorized by this amendment.

One commenter pointed out that the conversion factor should not be applicable to radioactive materials since different conditions could be produced relative to the original analysis and would, therefore, require new criticality and radiation evaluations. The commenter has raised a point that was overlooked in preparation of the proposal. It was not intended that § 173.26 apply to regulations containing specific conversions such as § 173.396, or § 178.24a which specifies the requirements for DOT Specification 2E. Therefore, the word "only" has been added to the first sentence of the rule in two places to limit its application to those regulations containing only limitations specified in U.S. liquid measures or avoirdupois weight.

A commenter recommended that the Bureau clarify that the purposes of this rulemaking are to make it possible to manufacture, mark, and test "metric capacity" containers and state that the new rule does not mandate that a 5-gallon pail must be made to hold 20 liters nor 55-gallon drums made to hold 220 liters. The commenter's request has merit. A literal interpretation of the proposal may result in a conclusion that the only basis for utilization of metric quanti-

ties would be at specifically one liter per quart or 500 grams per pound. This was not intended. It was the Bureau's intent that metric equivalents up to the limitations specified in the proposal may be utilized and the first sentence of the rule has been modified to indicate that metric units may be substituted on an equivalent basis and up to and including one liter per quart and 500 grams per pound. This same commenter requested that the language of § 173.26 be adjusted to reflect that changes in steel thicknesses are not required for the equivalent metric sizes. The Bureau does not consider such an additional provision to be necessary since there is no implication in the rule to indicate such a requirement. For example, § 178.116-6 contains a table indicating marked capacities in gallons. This amendment permits the conversion of the gallons entries to metric equivalents on the basis of one liter per quart. Therefore, the 10-gallon entry may be considered to read "40 liters" without any change to the minimum thicknesses specified. Tables of this type were taken into account during development of the proposal. The Bureau considers that the performance tests specified are sufficient to maintain overall container integrity and that puncture resistance continues to be accomplished through the specification of minimum thicknesses.

The United States Environmental Protection Agency submitted comments stating:

Administratively, the change is small and EPA certainly encourages the utilization of the metric system whenever and wherever feasible. However, without more evidence than is presented in the notice of proposed rulemaking, EPA must seriously question the wisdom of this proposal from a public health and environmental quality viewpoint.

In the existing regulations the maximum quantities eligible for substitution are 1 gallon of liquids and 10 pounds of solids. The allowable 5 and 10 percent, respective-

ly, increases allowed by conversion to metric measurements at these levels would indeed be insignificant. However, when the maximum limits are raised to 110 gallons of liquids and 1,000 pounds of solids, the difference between the United States measurement system and the metric system conversions specified becomes significant, viz., 6 gallons for liquids and 100 pounds for solids. Considering the variety of hazardous materials and containers eligible under this regulation it does not appear to be a simple matter. In the event of an accidental release and under certain circumstances it seems possible that such increases could significantly affect public health and the environment. EPA believes that more thought and analysis needs to be completed prior to proceeding further under this docket.

The Bureau does not agree that further thought and analysis is needed concerning this rulemaking. At its inception, full consideration was given to the increases being authorized and the preamble to Notice 78-9 contained a reference to the Bureau's agreement with the petitioner that such a provision would have a negligible effect on safety. The Bureau continues to agree with the petitioner and believes that the adoption of the amendment contained herein will have no significant effect on the safe transportation of hazardous materials. It should be noted that when metric measurements are used, packagings must be tested accordingly. This means that a DOT Specification 17E drum marked "220 L" must meet the test requirements specified in section 178.116-12 at 98 percent of its increased capacity and not based on 55 gallons, or approximately 208 liters capacity. The same holds true for other specifications for which test requirements are specified. The Bureau is satisfied that the conversion limitations permitted by this amendment will not have any significant impact on safety from the standpoint of public health or environmental quality, considering all the limita-

tions and conditions specified in the regulations.

The primary drafter of this document is Alan I. Roberts, Associate Director for Hazardous Materials Regulation, Materials Transportation Bureau, Research and Special Programs Administration.

In consideration of the foregoing, Title 49 Code of Federal Regulations, Part 173 is amended as follows:

In § 173.26 the Heading and paragraph (a) are revised to read as follows:

§ 173.26 Quantity limitations and metric measurements.

(a) When quantity limitations are specified in this subchapter only by U.S. liquid measure for 110 gallons or less, or only by avoirdupois weight for 1,000 pounds or less, quantities measured in metric units may be substituted on an equivalent basis and up to and including one liter per quart and 500 grams per pound. When metric measurements are used, specification packagings must be marked to indicate their use and must be tested accordingly. Symbols for metric markings are L for liter, mL for milliliter, kg for kilogram, and g for gram.

(49 U.S.C. 1803, 1808; 49 CFR 1.53(c))

NOTE.—The Materials Transportation Bureau has determined that this final regulation will not have a major economic impact under the terms of Executive Order 12044 and Department of Transportation implementing procedures (43 FR 9582). A regulatory evaluation is available for review in the docket.

Issued in Washington, D.C. on November 17, 1978.

L. D. SANTMAN,
Director, Materials
Transportation Bureau.

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